

## HAND-HELD AMUSEMENT DEVICES AND METHODS INVOLVING SAME

### Field of the Invention

The present invention relates to hand-held devices having various features that are designed to accommodate people's needs, desires, and/or habits to "fiddle" with things.

### Background of the Invention

Many people tend to perform secondary tasks while working on a primary task. Examples of such behavior include playing with a pen or pencil when writing; tapping fingers when thinking of what to type; and fiddling with whatever small objects are available when speaking on the phone. In many instances, the object associated with the secondary task is not specifically designed with the secondary task in mind. An object of the present invention is to provide devices that are designed to accommodate a variety of so-called "secondary tasks" or diversions.

### Summary of the Invention

The present invention may be described in terms of a hand-held amusement device having a variety of features that facilitate manipulative activities in and/or by a person's hand. These features may include various combinations of: a base that is configured for rocking back and forth on a support surface; a rotatable cylinder on the device; a telescoping plunger on the device; a sliding clip on the device; a pivoting lever on the device; a hole extending through an end of the device; at least one word embossed in braille on the device; and a spherical ball that

is rotatably mounted in the device and protrudes outward from the device. Also, the device may be configured for rotation about as many as three orthogonal axes while being held in respective positions between a person's thumb and an opposing finger. Many features and/or advantages of the present invention will become apparent from the more detailed description that follows.

#### Brief Description of the Figures of the Drawing

With reference to the Figures of the Drawing, wherein like numerals represent like parts and assemblies throughout the several views,

Figure 1 is a top view of a preferred embodiment amusement device constructed according to the principles of the present invention;

Figure 2 is a side view of the amusement device of Figure 1;

Figure 3 is a bottom view of the amusement device of Figure 1;

Figure 4 is an opposite side view of the amusement device of Figure 1;

Figure 5 is a top view of the amusement device of Figure 1, showing certain parts in alternative positions;

Figure 6 is a partially sectioned bottom view of the amusement device of Figure 1 with the second base member (of Figures 9-10) removed;

Figure 7 is a top view of a first base member on the amusement device of Figure;

Figure 8 is a bottom view of the first base member of Figure 7;

Figure 9 is a bottom view of a second base member on the amusement device of Figure 1;

5 Figure 10 is a top view of the second base member of Figure 9;

Figure 11 is a partially sectioned top view of a clip on the amusement device of Figure 1;

Figure 12 is an end view of the clip of Figure 11;

Figure 13 is an opposite end view of the clip of Figure 11;

10 Figure 14 is a side view of the clip of Figure 11;

Figure 15 is an opposite side view of the clip of Figure 11;

Figure 16 is a top view of a lever on the amusement device of Figure 1;

Figure 17 is a side view of the lever of Figure 16;

15 Figure 18 is an end view of the lever of Figure 17; and

Figure 19 is a bottom view of the lever of Figure 16.

#### Detailed Description of a Preferred Embodiment

A preferred embodiment amusement device constructed according to the principles of the present invention is designated as 100 in  
20 Figures 1-5 (which are drawn to scale). The preferred embodiment device 100 includes first and second base members 110 and 120 that are secured together to form a body or base sized and configured to be held in a person's hand and/or stored in a person's pocket. The  
25 members 110 and 120 are preferably injection molded plastic, and they may be secured together by adhesives, welding, fasteners, or

other suitable means known in the art. Registration pegs and mating holes or other suitable means may be used to maintain the two members 110 and 120 in proper alignment with one another.

5 The preferred embodiment body has a length of approximately five and one-half inches, a width of approximately one and one-quarter inches, and a thickness of approximately one-half inch. However, the dimensions may alternatively be described in terms of ranges, including a length from three inches to six inches, a width from one-half inch to one and one-half inches, and a thickness from  
10 one-half inch to one inch. Among other things, these dimensions allow the base to be spun about three orthogonal axes when held in respective positions between a person's thumb and an opposing finger. In any event, the preferred embodiment 100 may also be described as sized and configured to be grasped in a manner similar  
15 to hand-held objects such as hammers, tennis racquets, and utility knives, although various aspects of the present invention may be implemented in other configurations, as well.

The preferred embodiment body may also be described in terms of a first side bounded by a portion of a cylindrical surface that  
20 bows or curves outward in the middle, and an opposite, second side bounded by a plane. The width of the preferred embodiment body is measured between these two sides (along a radius of the curved surface that extends perpendicular to the straight surface). The preferred embodiment body also has opposite top and bottom sides  
25 bounded by respective, parallel planes. The thickness of the preferred embodiment is measured between these parallel planes.

The top side is defined by an outer surface on the first base member 110, and the bottom side is defined by an outer surface on the second base member 120.

The first base member 110 is shown by itself in Figures 7-8.

5 A partial spherical opening 215 is defined in the middle of the first base member 110 to accommodate a portion of a spherical ball 150, as further described below. A notch 213 extends into a first side of the first base member 110 (the same side that is described elsewhere as the first, curved side of the body) for reasons  
10 described below. The notch 213 may be described as laterally adjacent the opening 215.

In a first longitudinal direction away from the opening 215, a portion of the first base member 110 proximate the curved side is configured to accommodate a lever 130, as further described below.  
15 In this regard, the first base member 110 is notched and defines an internally accessible hole 113 to accommodate an end of a shaft 133 that is associated with the lever 130, as further described below. Also, an internally accessible cavity 112 is defined in the first base member 110 to accommodate an end of a leaf spring 132 that is  
20 also associated with the lever 130 and further described below.

At the same general longitudinal location along the first base member 110, a notch 214 extends into an opposite, second side of the first base member 110 (the same side that is described elsewhere as the second, flat side of the body) to accommodate a  
25 cylinder 140, as further described below. Grooves 114 extend into the first base member 110 at opposite ends of the notch 214 to

accommodate respective ends of a shaft 144 that is associated the cylinder 140, as further described below. A first end 111 of the first base member 110, disposed in the same first longitudinal direction away from the opening 215, is configured as a hook that  
5 bounds part of a circular opening 201, as further described below.

In an opposite, second longitudinal direction away from the opening 215, an internally accessible channel 116 extends longitudinally from a closed, inner end that is proximate the opening 215, to an open, outer end that terminates together with  
10 the opposite, second end 119 of the first base member 110. First and second internally accessible grooves 117 extend along opposite sides of the channel 116 but terminate short of the second end 119 of the first base member 110. The grooves 117 and the channel 116 accommodate respective portions of a plunger 160, as further  
15 described below.

In the same, second longitudinal direction away from the opening 215, the external side of the base member 110 is configured to accommodate a clip 180, as further described below. In this regard, portions of both base members 110 and 120 are configured to  
20 define rails that are straddled by respective portions of the clip 180. An externally accessible channel 216 extends longitudinally along the top of the base member 110, proximate the curved side, to accommodate part of the clip 180. An externally accessible groove 217 extends longitudinally along the top of the base member 110, proximate the straight side, to accommodate another part of the  
25 clip 180. A stop 218 spans the groove 217 to prevent unintentional

removal of the clip 180 from the base, and bumps 219 span the groove 217 to define latched positions for the clip 180 relative to the base.

5 The top side of the base member 110 includes room for information or texturing (e.g. the FWIDGET logo 101) in a region overlying the leaf spring 132, and room for information or texturing (e.g. FWIDGET embossed in braille 102) in a region overlying the plunger channel 116. These same regions provide bearing surfaces on which you can place your fingers in a manner  
10 that straddles the ball 150 (for reasons described below).

The second base member 120 is shown by itself in Figures 9-10. A partial spherical opening 225 is defined in the middle of the second base member 120 to accommodate a portion of the spherical ball 150. In a first longitudinal direction away from the opening  
15 225, the second base member 120 defines an internally accessible hole 123 to accommodate an opposite end of same shaft 133. Also, an internally accessible cavity 122 is defined in the second base member 120 to accommodate an end of the leaf spring 132.

At the same general longitudinal location along the second  
20 base member 120, a notch 224 extends into an opposite, second side of the second base member 120 (the same side that is described elsewhere as the second, flat side of the body) to accommodate the cylinder 140. Grooves 124 extend into the second base member 120 at opposite ends of the notch 224 to accommodate respective ends of  
25 the shaft 144. A first end 121 of the second base member 120, disposed in the same first longitudinal direction away from the

opening 225, is configured as a closed loop that bounds the circular opening 201.

5 In an opposite, second longitudinal direction away from the opening 225, an internally accessible channel 126 extends longitudinally from a closed, inner end that is proximate the opening 225, to an open, outer end that terminates together with the opposite, second end 129 of the second base member 120. First and second internally accessible grooves 127 extend along opposite sides of the channel 126 but terminate short of the second end 129 of the second base member 120. The grooves 127 and the channel 126  
10 accommodate respective portions of the plunger 160.

In the same, second longitudinal direction away from the opening 225, the external side of the base member 120 is configured to accommodate the clip 180. As noted above, portions of the base  
15 members 110 and 120 are configured to define rails that are straddled by respective portions of the clip 180. An externally accessible channel 226 extends longitudinally along the top of the base member 110, proximate the curved side, to accommodate part of the clip 180. An externally accessible groove 227 extends  
20 longitudinally along the top of the base member 110, proximate the straight side, to accommodate another part of the clip 180. A stop 228 spans the groove 227 to prevent unintentional removal of the clip 180 from the base, and bumps 229 span the groove 227 to define latched positions for the clip 180 relative to the base.

25 The top side of the base member 120 includes a recessed area 204 in a region overlying the leaf spring 132, and aligned with the



notch 224. This recessed area 204 increases accessibility to the cylinder 140. The top side of the base member 120 also includes room for information or texturing (e.g. ridges 203 spaced apart from one another by distances that grow progressively larger) in a region overlying the plunger channel 126, and room for information or texturing (e.g. the circular ridge 205) in a region surrounding the opening 225.

Figures 16-19 show the lever 130 by itself. The lever 130 may be described as a hook-shaped member having a base end 138 that is approximately one-half as thick as the first base member 110, and a hooked end 131 that is approximately equal in thickness to the first base member 110. A hole 139 extends through the base end 138 to receive the shaft 133 (which is preferably a steel pin). On an alternative embodiment, the shaft 133 and the lever 130 are formed as a single integral part.

Figure 6 shows how the lever 130 and the leaf spring 132 are positioned relative to the first base member 110. The hole 139 in the lever 130 is aligned with the hole 113 in the base member 110, and the hooked end 131 of the lever 130 is arranged to oppose the hooked end 111 of the base member 110. The leaf spring 132 has a relatively thicker, trapezoidal base that projects into the cavity 112 in the base member 110, and that projects into the similar cavity 122 in the base member 120, as well. The opposite, distal end of the leaf spring 132 bears against the base end 138 of the lever 130. The leaf spring 132 bears against respective bearing surfaces on the lever 130 to bias the lever 130 to remain in one of

three orientations (shown in Figures 1, 5, and 6). The spring 132 may be described as a means for biasing the lever to remain in any of these orientations and/or resisting movement of the lever from these orientations.

5           Figure 6 also shows how the cylinder 140 and the shaft 144 are positioned relative to the first base member 110. A hole extends lengthwise through the cylinder 140 to rotatably receive the shaft 144 (which is preferably a steel pin). As with the lever 130 and the shaft 133, the cylinder 140 and the shaft 144 are formed as a  
10           single integral part on an alternative embodiment (in which case the ends of the "shaft" are cut straight across to eliminate any impediment to rotation relative to the base). On the preferred embodiment 100, the ends of the shaft 144 are beveled to match the shape of the grooves 114 and 124 in respective base members 110 and  
15           120.

          Figure 6 also shows how the spherical ball 150 is positioned relative to the first base member 110. The ball 150 is preferably made of steel and sized and configured to be retained between the base members 110 and 120, while remaining free to rotate relative  
20           thereto and protruding outward therefrom.

          Figure 6 also shows how the plunger 160 and an associated coil spring 170 are positioned relative to the first base member 110. The plunger 160 is preferably an injection molded, tubular member having a rounded, closed end 169 that protrudes outward beyond the  
25           base, and an opposite, open end disposed inside the base. Tabs 167 extend outward from diametrically opposed portions of the plunger

160, proximate its interior end, and travel along respective channels 117 and 217 in the base members 110 and 120. The tabs 167 prevent removal of the plunger 160 from the fully assembled base. A bore 166 extends into the open end of the plunger 160, and the  
5 spring 170 is compressed between the end wall of the bore 166 and the interior end walls of the channels 116 and 126. The spring 170 may be described as a means for biasing the plunger 160 outward, and/or resisting inward movement of the plunger 160. The bore 166 may be made relatively deeper into the plunger 160 to receive a  
10 ballast weight if deemed necessary to help make the center of mass of the device 100 coincidental with the center of the ball 150.

The device 100 is assembled by arranging the parts shown in Figure 6 in the manner shown in Figure 6; aligning the second base member 120 relative thereto; and securing the second base member  
15 120 to the first base member 110. The clip 180 is then forced onto the base until it snaps into engagement with the grooves 216-217 and 226-227 as further explained below.

Figures 11-15 show the clip 180 by itself. The clip 180 may be described as a generally U-shaped member that is preferably  
20 injection molded plastic. A central portion 182 of the clip 180 spans part of the second ends 119 and 219 of respective base members 110 and 120, and defines a hole 183 that is configured to accommodate passage of the protruding end of the plunger 160. Opposing legs 185 extend away from a first end of the central  
25 portion 182, and tabs 186 on the distal ends of the legs 185 snap into respective grooves 216 and 226. A U-shaped leg 188 extends

away from an opposite, second end of the central portion 182, and  
opposing nubs 187 on the distal end of the leg 188 snap into  
respective grooves 217 and 227. A window 189 extends through the  
central portion 182 to facilitate formation of the nubs 187 by  
5 injection molding. The tabs 186 and the nubs 187 prevent  
unintentional removal of the cap 180 from the base, and the nubs  
187 may also be described as means for biasing the cap 180 to  
remain in either of the positions shown in Figures 3 and 5, and/or  
for resisting movement of the cap 180 from either of these  
10 positions.

When the cap 180 occupies the position shown in Figure 3, the  
plunger 160 is substantially covered, and the legs 185 effectively  
extend the curved side of the base, thereby facilitating rocking  
the device 100 back and forth on a support surface. The cap 180  
15 may also serve as a source of amusement by sliding back and forth  
along the base, and/or clicking into and out of latched positions  
relative to the base.

When the cap 180 occupies the position shown in Figure 5,  
substantially more of the plunger 160 is exposed and available for  
20 interaction with a user. One way to use the plunger 160 for  
amusement purposes is to push it inward with your thumb while  
holding the base in your hand. Another option is to position the  
plunger 160 against a support surface, and push down on the device  
100. Yet another possibility is to position the plunger 160  
25 proximate a support surface and let the device 100 "bounce" against  
the support surface.

The ball 150 facilitates multiple amusement activities, as well. For example, you can use a thumb or finger to rotate the ball 150 while holding the device 100 in your hand. You can also hold the ball 150 between your thumb and an opposing finger, and spin the base relative to the ball 150. Yet another available option is to place the ball 150 on a support surface; place your fingers on the base in a manner that straddles the ball 150; and roll or "surf" the device 100 across the support surface. Alternatively, when the ball 150 is on the support surface, you can place a finger on the ball 150, and spin the base about the ball 150.

The cylinder 140 may be rotated by a thumb or finger when the device 100 is being held in your hand. Also, the cylinder 140 may be rolled against a support surface or the edge of a support surface. Moreover, depending on the embodiment, the cylinder 140 may be moved axially back and forth between the end walls of the notches 214 and 224.

The lever 130 may be pivoted by a thumb or finger when the device 100 is being held in your hand. The lever 130 may be pivoted from the position shown in Figure 6, toward the position shown in Figure 1 to "pinch" a finger or other object between the hooked end 131 and the first end 121 of the base member 120. Also, when the lever 130 is moved to the position shown in Figure 5, the hooked end 131 is configured to "hang" on a finger or thumb. Alternatively, the protruding hooked end 131 may be positioned on a support surface to facilitate spinning of the device 100 relative

to the support surface (when a finger is positioned on a diametrically opposite portion of the base), or the device 100 may be spun while holding the opposite curved and straight sides of the base between your thumb and an opposing finger.

5       The opening 201 accommodates still more amusing activities. For example, you can stick a finger through the hole 201 and "twirl" the device 100 about your finger. Alternatively, you can stick a pencil (or rubber band) through the hole 201; grab the opposite ends of the pencil (or rubber band) in opposite hands; and  
10       "whirl" the device 100 about the pencil or (rubber band).

      Additional amusement features are integrated into the base itself. For example, the braille letters 102 and the ridges 203 and 204 provide interesting textures to rub your thumb or fingers across. Also, the size of the base is such that you can hold the  
15       device 100 lengthwise between your thumb and an opposing finger, and spin the device 100 about its longitudinal axis.

      The present invention may also be described in terms of methods of amusement, wherein various combinations of the foregoing activities are performed using the device 100, and/or still more  
20       amusing activities are performed as such uses become apparent to people who use the device 100. The device 100 and/or its description will also lead people to derive other amusing devices that incorporate the spirit of the present invention. For example, people might substitute a new feature for one of the depicted  
25       features (e.g. replace the hole 201 with a magnet), or add a feature (e.g. add a magnet inside the outer tip of the plunger 160),

or alter an existing feature (e.g. magnetizing the ball 150). People also might be inclined to arrange various features of the present invention in different ways, and/or to use alternative structures to achieve the same results. Among other things, for  
5 example, the ball may be integrated into the base members to make the resulting device less expensive to manufacture and/or less heavy to carry in your pocket. Recognizing that the present invention is described with reference to a preferred embodiment and a particular application that will lead persons skilled in the art  
10 to derive additional embodiments, applications, and/or improvements, the scope of the present invention is to be limited only to the extent of the following claims.